

Claims

1. A method, for use in a virus-free certificate authority (102), of generating a virus-free certificate (200) certifying that a file is virus-free comprising the steps of:

- receiving (300) a virus-free certificate request for a file from a server (101) or a client (100) system, said virus-free certificate request comprising the file for which the virus-free certificate is requested;

- determining (301) whether a virus-free certificate is integrated in the file;

If no virus-free certificate is integrated in the file:

- determining (305) whether the file is virus-free or not;

if the file is declared virus-free by the virus-free certificate authority (102):

- generating (313, 314) a virus-free certificate (200) comprising a file signature (207) for certifying that said file is declared virus-free by the virus-free certificate authority (102);

- integrating (316) the generated virus-free certificate (200) in the file;

- sending (316) back in response to the virus-free certificate request the file with the integrated virus-free certificate (200).

2. The method according to ~~the preceding~~¹ claim₁ wherein the virus-free certificate request comprises:

- a list of one or a plurality of anti-virus programs to execute on the file to determine whether the file is virus-free or not.

3. The method according to ~~any one of the preceding claims~~¹ wherein said file comprised in the virus-free certificate request comprises:

- an integrated virus-free certificate.

a 4. The method according to ~~any one of the preceding claims~~¹ comprising the further steps of:

If the file comprises an integrated virus-free certificate:

- determining (302, 303) whether the virus-free certificate integrated in the file has been previously generated by the virus-free certificate authority.

If the virus-free certificate integrated in the file has been previously generated by the virus-free certificate authority:

- updating (304) the virus-free certificate.

If the virus-free certificate integrated in the file has not been previously generated by the virus-free certificate authority:

- generating (313, 314) a new virus-free certificate.

a 5. The method according to ~~any one of the preceding claims~~¹ wherein said file further comprises:

- a file header comprising:
- a non encrypted file signature (501);
- a file length (502);
- a product name (503).

a 6. The method according to ~~any one of the preceding claims~~¹ wherein said step of integrating (316) the virus-free certificate (200) in the file comprises the further steps of:

- appending (506) the virus-free certificate to the file;
- modifying ^athe file header, preferably:
- ^athe non encrypted file signature (501);
- ^athe file length (502);
- ^athe product name (503), said product name comprising means for identifying the integrated virus-free certificate.

¹
 a 7. The method according to ~~any one of the preceding claims~~₁ wherein said step of determining whether the file is virus-free or not comprises the further step of:

- executing (301) one or a plurality of anti-virus programs on said file for detecting viruses.

¹
 a 8. The method according to ~~any one of the preceding claims~~₁ wherein the virus-free certificate further comprises:

- ^a
 a • ~~the~~₁ list of the one or plurality of anti-virus programs (208) that have been executed on the file.

¹
 a 9. The method according to ~~any one of the preceding claims~~₁ wherein the virus-free certificate (200) further comprises:

- a file identification (201);
- a virus-free certificate authority identification (202);
- a public key (203) for decrypting the file signature;
- a certificate signature (206) for authenticating the virus-free certificate.

¹
 a 10. The method according to ~~any one of the preceding claims~~₁ comprising the further steps (305) of:

- identifying the server (101) or client (100) system where the file comprising the integrated virus-free certificate is stored;
- updating the file with the integrated virus-free certificate.

¹
 a 11. The method according to ~~any one of the preceding claims~~₁ wherein the step of generating (303, 304) a file signature (207) comprises the further steps of:

- hashing the file to generate a file digest;
- encrypting the file digest using a private key.

Sub
a2 } 12. A system, preferably a virus-free certificate authority (102), for carrying out the method according to any one of the preceding claims.

13. A computer program comprising instructions for carrying out the method according to any one of claims 1 to 11.

14. A method, for use in a server (101) or client (100) system, of determining that a file is virus-free comprising the steps of:

- determining (401) whether a virus-free certificate (200) is integrated within a file; if a virus-free certificate is integrated within the file:
- authenticating (415) the virus-free certificate (200), said virus-free certificate comprising a certificate signature (206);
- authenticating (407) the file, said virus-free certificate (200) comprising a file signature (207), said file signature certifying that said file has been declared virus-free by a virus-free certificate authority (102).

a 15. The method according to the preceding claim¹⁴ wherein said step of authenticating (407) the file comprises the further steps of:

- decrypting the file signature (207) using a public key (203) comprised in the virus-free certificate (200).
- hashing the file to generate a file digest;
- comparing the decrypted file signature with the generated file digest.

a 16. The method according to ~~any one of claims 14 to 15~~ wherein the step of authenticating the virus-free certificate comprises the further step of:

- validating the virus-free certificate.

a 17. The method according to ~~any one of claims 14 to 16~~¹⁶ wherein the step of validating the virus-free certificate comprises the further step of:

- determining whether the virus-free certificate is valid or not;

If the virus-free certificate is not valid:

- requesting a virus-free certificate update or an updated virus-free certificate update to a virus-free certificate authority (102).

a 18. The method according to ~~any one of the claims 14 to 17~~ wherein the virus-free certificate (200) further comprises:

- a file identification (201);
- a virus-free certificate authority identification (202);
- a public key (203) for decrypting the file signature;

a 19. The method according to ~~any one of claims 14 to 18~~ wherein said file further comprises:

- a file header comprising:
- a non encrypted file signature (501) for signing the file;
- a file length (502);
- a product name (503), said product name comprising means for identifying the integrated virus-free certificate.

a 20. The method according to ~~any one of~~ ^{*a*} claims ~~14 to 19~~ wherein the step of determining (401) whether a virus-free certificate (200) is integrated within a file comprises the further step of:

- determining whether a product name (503) within ^{*a*} the file header comprises means for identifying the integrated virus-free certificate or not.

Sub 23 21. A system, preferably a server (101) or client (100) system, for carrying out the method according to any one of claims 14 to 20.

22. A computer program comprising instructions for carrying out the method according to any one of claims 14 to 20.

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